



FIG. 1 DRAWING OF ZAGREB (ORIGINAL SCALE 1:5760), 1864  
SL. 1. NACRT GRADA ZAGREBA (IZVORNO MJERILO 1:5760), 1864.

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# MORPHOLOGICAL AND FUNCTIONAL CHANGE IN ZAGREB LOWER TOWN (*DONJI GRAD*) 1862-1914 BASED ON CADASTRAL SOURCES

## PROMJENE MORFOLOŠKE I FUNKCIONALNE STRUKTURE DONJEGA GRADA ZAGREBA 1862.-1914. NA TEMELJU KATASTARSKIH IZVORA

CADASTRAL SOURCES  
INDUSTRIALIZATION  
LOWER TOWN  
URBAN DEVELOPMENT  
ZAGREB

KATASTARSKI IZVORI  
INDUSTRIJALIZACIJA  
DONJI GRAD  
URBANI RAZVOJ  
ZAGREB

Based on comparative analyse of the data from the register and the cadastral plan, we can get a very detailed and exhaustive insight into the complete urban structure, which we can express very precisely, cartographically and statistically. Chronological comparison of several cadastral sources, dating from different years, gives us an insight into the dynamism and characteristics of urban development, enabling us to follow spatial development of town as well as to consider dominant historical and geographical processes in a very detailed manner. In this paper we present experiences based on our original research into cadastral sources of the city of Zagreb (Lower Town = *Donji grad*) originating from the period of 1862 to 1914.

Komparativnom analizom podataka dobivenih iz katastarskih popisa čestica i katastarskih planova dobiva se detaljan i iscrpan uvid u kompletnu urbanu strukturu prostora koji možemo izraziti vrlo precizno, kartografski i statistički. Kronološkom usporedbom nekoliko katastarskih izvora tijekom dužeg razdoblja dobivamo uvid u trend transformacije prostora, omogućavajući na taj način praćenje i analizu intenziteta i smjera prostornoga razvoja grada, kao i sagledavanje svih dominantnih historijsko-geografskih procesa koji su se u njemu odvijali. Ovdje iznosimo iskustva temeljena na originalnome znanstvenom istraživanju katastarskih izvora grada Zagreba nastalih u razdoblju 1862.-1914. godine.

## THE TOWN OF ZAGREB IN THE CONTEXT OF EUROPEAN INDUSTRIAL TOWN<sup>1</sup>

ZAGREB U KONTEKSTU RAZVOJA  
EUROPSKOGA INDUSTRIJSKOG GRADA

The period of the 19<sup>th</sup> century is particularly significant for urban development due to rapid town growth, characterised by intensive transformation of the functional and morphological town structure, encouraged by traffic and industrial development as well as population growth. Industrialization did not start at the same time in all European countries and did not develop with the same intensity. The development of industry in the Croatian countries was mainly influenced by the railway network development, which started during the second half of the 19<sup>th</sup> century, thus the industrial urbanization in Croatia originates from that time. Consequently, the turning point in the Zagreb urban development was its connection to the railway network in 1862.

After the introduction of railway, Zagreb could finally valorise its main quality – the outstanding traffic position that has been the base of its future economic and urban development. At the same time the railway traffic connection was the precondition and impulse for its growth into a large industrial city. The railway construction in 1862 thus represents the real turning point in the development of Zagreb, when the city assumed a completely new direction in its urbanistic, economic and demographic growth. After 1862, as a result of new development conditions, Zagreb started to develop from a pre-industrial town into an industrial one.

## CADASTRAL SOURCES

### KATASTARSKI IZVORI

During the second half of 19<sup>th</sup> and at the beginning of 20<sup>th</sup> century, Zagreb had two cadastral surveys and one revision. The first systematic cadastral survey of Zagreb was made in 1862 within the survey made by the Habsburg Monarchy.<sup>2</sup> As a result of this survey, the first cadastral maps were made<sup>3</sup> (scale 1:2880)<sup>4</sup> as well as the first cadastral registers.<sup>5</sup> In 1893 a revision was carried out. Cadastral maps of the first survey were supplemented and a new cadastral register of parcels was made.<sup>6</sup> Rapid urban growth of Zagreb at the beginning of 20<sup>th</sup> century called for a new cadastral survey, which was carried out in the period from 1909 to 1914. As a result of the new survey, a new cadastral register was made as well as new cadastral plans, now in the scale of 1:1000 for the central part of town (including Lower Town) and 1:2000 for the suburbs.<sup>7</sup>

These three generations of cadastral sources illustrate the urban development of Zagreb from 1862 to 1914. Due to the complexity of processes for the larger urban entity, we shall herewith limit the presentation to the changes that took place within the Lower Town of Zagreb. Maps shown here are based on data in cadastral plans as well as processing of statistical data gained from the cadastral register of the cadastral unit Zagreb Lower Town for the years 1862, 1893 and 1914, showing the land use (functional structure),<sup>8</sup> central functions as well as morphological structure<sup>9</sup> of the Lower Town. In order to get a clear picture of spatial development of the Lower Town, contours of partial city walls of the Upper Town and Kaptol, within which Zagreb had developed in the Middle Ages, are marked on all maps.

<sup>1</sup> This paper is a part of the author's doctoral dissertation (SLUKAN: 1999).

<sup>2</sup> During the first cadastral survey, the town of Zagreb was divided into three cadastral units: Zagreb Upper Town (*Gornji grad*), Zagreb Lower Town (*Donji grad*) and Vlaska Street (eastern town part in the property of Kaptol).

<sup>3</sup> HDA – cadastral plan *Grad Zagreb dolnji sa miestom Horvati, Predgrad-Sava i Trnje 1862*, scale 1:2880

<sup>4</sup> 1 zoll on the map = 40 klafters in actual size

<sup>5</sup> HDA – *Parzellen-Protocoll der Gemeinde Zagreb dolnji 1862*

<sup>6</sup> HDA – cadastral plan *Reambulacija katastarske općine Donji grad Zagreb 1893; Zapisnik cestica občina Zagreb dolnji s miestami Horvati, Predgrad-Sava i Trnje 1893*

<sup>7</sup> DAZ-GGU – cadastral plan *Katastarska općina Grad Zagreb, intravilan; HDA – Zapisnik cestica za katastrsku općinu Grad Zagreb 1914*

<sup>8</sup> By functional urban structure we mean the spatial arrangement and different concentration of town functions or land use. Based on the cadastral sources we can trace many features of the town functional structure: land use of the parcels (proportion of built-up and undeveloped areas) and share of agricultural areas, spatial arrangement of sin-

## GEOGRAPHICAL AND HISTORICAL DEVELOPMENT CONDITIONS OF THE ZAGREB LOWER TOWN

### POVIJESNO-ZEMLJOPISNI UVJETI RAZVOJA DONJEGA GRADA ZAGREBA

The Lower Town of Zagreb is located below the double medieval town core at the junction of the Medvednica slope and the Sava alluvium plain. The processes of town expansion during 19<sup>th</sup> century were characterized by pulling down the medieval town gates and parts of the walls<sup>10</sup> and by a rapid development of the Lower Town, which gradually assumed the functions of a trade and business centre of Zagreb. The main street – Ilica – was the main axis of the Zagreb Lower Town and, being the main access route to Styria, was one of the most important regional roads of central Croatia. A second important traffic route of the Zagreb Lower Town was Savska Street, the main road which led from Zagreb to Karlovac and to the Adriatic Sea. Its orientation was determined by the most favourable crossing over the Sava River. Very favourable construction conditions at the junction of the hills and plains and an exceptional traffic position of the Zagreb Lower Town, contributed to the fact that within a few decades of 19<sup>th</sup> century the Zagreb Lower Town became a true town centre and the starting point of urbanization of the whole Zagreb area.

Bordered by Ilica in the north, the railway tracks in the south, the Railway Station Road in the west (the present name of the street is Ulica Republike Austrije) and Draškovićeva Street in the east, the Zagreb Lower Town started to develop out of a former *suburbium* within just a few decades. Although in the mid 19<sup>th</sup> century it primarily started to grow as a new residential zone, its central functions ex-

perienced major growth due to its exquisite traffic position after the construction of railway with the nearby market place and numerous public buildings. Already at the beginning of 20<sup>th</sup> century, the Zagreb Lower Town became the central business district of the town. It has retained this function to the present day.

## ZAGREB AS PRE-INDUSTRIAL TOWN ACCORDING TO THE CADASTRAL SOURCES OF THE FIRST SURVEY IN 1862

### ZAGREB KAO PREDINDUSTRIJSKI GRAD U KATASTARSKIM IZVORIMA PRVE IZMJERE 1862. GODINE

The first generation of cadastral sources of Zagreb gives us an insight into the appearance and structure of the town in the year when the railway arrived, when the processes of transformation from a pre-industrial into an industrial town were just beginning. The link to the railway network, which had crucial effects on industrialization, did not have any influence on the urban development of Zagreb at this point. At that time, Zagreb was a relatively small town with about 17 000 inhabitants and its growth was primarily stimulated due to its central functions as the capital of Croatia. The first cadastral sources indicate the building up of the Lower Town, still primarily influenced by the importance of particular town streets as main roads in postal traffic.

In the arrangement of the built-up areas, it is clear that construction mostly took place in the main street (Ilica) and in the area between the main town square (Ban Jelacic Square) and Novi trg (meaning New Square, today Nikola Šubić Zrinski Square). The construction of Ilica was due to its exceptional traffic importance, while the main town square was recognised as the most suitable area to link the two historic cores with the Lower Town. The square became the starting point of urban development, whereas going further from the main street and the market square the number of built-up parcels is decreased. It is also evident that all the streets in the north-south direction have more buildings on their north side, especially at the junctions with Ilica Street. The dominant direction of growth was east-west, largely due to the ground topography, supported also by the importance of the traffic direction to Styria and Carniola. Construction of the streets in the north-south axis was slow, especially in the zones far from the town centre. The railway station, built in 1862 in the south-west of the Lower Town as a station on the railway line Zagreb-Vienna, still did not have a stronger influence on the dominant direction of urban growth.

Although the railway construction had no immediate impact neither onto the dominant directions in the town construction nor on the

gle areas functional zoning, particularly of industrial locations.

9 By physiognomic and morphological town structure we mean the spatial arrangement of the morphological elements of the town such as streets, squares, particles, blocks of buildings etc. The elements mentioned above are characterized by certain specific features such as street pattern, construction density, building heights, building material, shape and appearance of objects. By combining the data of the cadastral plan and the cadastral register of the parcels, we can follow: street plan, shape and position of blocks of buildings; building heights (three-dimensional town presentation) and building material.

10 The process of pulling down the town gates and parts of the walls began in 1812 when the South Gate and soon after also the North Gate of the Upper Town were pulled down. In the mid 19<sup>th</sup> century a part of the city walls between the Upper Town and Kaptol was also pulled down. Major demolition of the city walls and gates around Kaptol occurred in 1862 when the South Gate of Kaptol was pulled down and 1872 when the North Gate of Kaptol was pulled down, as well as in 1906 when the Tower of Bakac was pulled down in order to connect Kaptol with the Ban Jelacic Square.



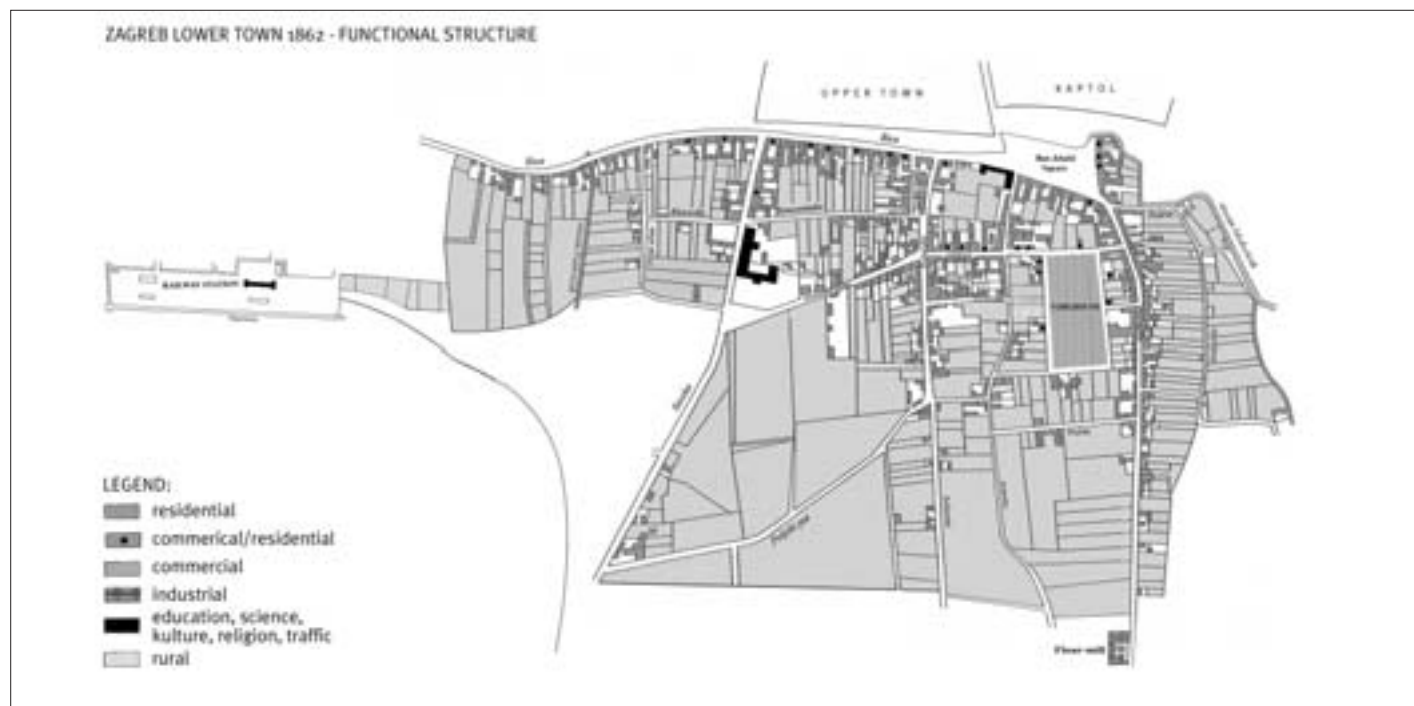


FIG. 2 ZAGREB, LOWER TOWN, 1862 – FUNCTIONAL STRUCTURE

SL. 2. ZAGREB, DONJI GRAD, 1862. – FUNKCIONALNA STRUKTURA

location of public buildings, it was the very arrival of railway that enabled the beginning of town industrialization. Zagreb namely got its first two industrial plants in 1862. Those were the Royal Steam-powered flour-mill of Zagreb (*Kraljevski povlašteni parni i umjetni mlin*)<sup>11</sup> and the Pokorny Liqueur factory (*Kraljevska povlaštena zagrebačka tvornica likera Pokorny*).<sup>12</sup> Despite the fact that the arrival of railway undoubtedly influenced the construction of the first factories in 1862, the railway itself did not have any influence on their location. The Steam-powered flour-mill was built south of the Lower Town in the vicinity of the village of Trnje, whose inhabitants worked in the mill. The Liqueur factory was built far away in the eastern outskirts of the town, in Vlaška Street, which was the most important regional traffic road to Slavonia.

**Street Pattern** – The cadastral map of Zagreb clearly shows that in 1862 the streets of the Lower Town did not have any regular structure. The direction of the streets was determined by the topography of the ground: the asymmetrical direction of the main town street, Ilica, was determined by the contact zone between the Medvednica slope and the alluvial plain of the Sava River. It is quite similar to other streets of the Lower Town, which are characterized by irregular directions.

**Central Functions** – The comparison of all data from the cadastral plan and the cadastral register gives us an insight into the spatial arrangement of buildings with specific

central functions (trade, administration, education, science, culture, religion and traffic). From the cadastral plan of 1862, it is clear that the Lower Town underwent construction of a large number of new buildings, primarily for residential use. The only public buildings were the two hospitals and the church of St Vincent. The public hospital (*Bolnica Milosrdne brace*) on Ban Jelačić Square was built in 1804<sup>13</sup> at the time when it was still functioning as a market place. On the other hand, a peripheral location in the outskirts was more suitable for the new public hospital (*Obća bolnica*), which was built in 1856/1859 on the future Univerzitetski Square (today Maršal Tito Square).<sup>14</sup> Already in 1864 after that part of the Lower Town had been urbanized, this hospital was relocated to the eastern outskirts of the town (outside the Lower Town). The church of St Vincent with an adjoining monastery, finished in 1845,<sup>15</sup> had a suitable peripheral location.

Some shops were located at the street level of private residential buildings. This phase in the development of the Lower Town was characterized by the connection of trade and residential function. This so-called cellular func-

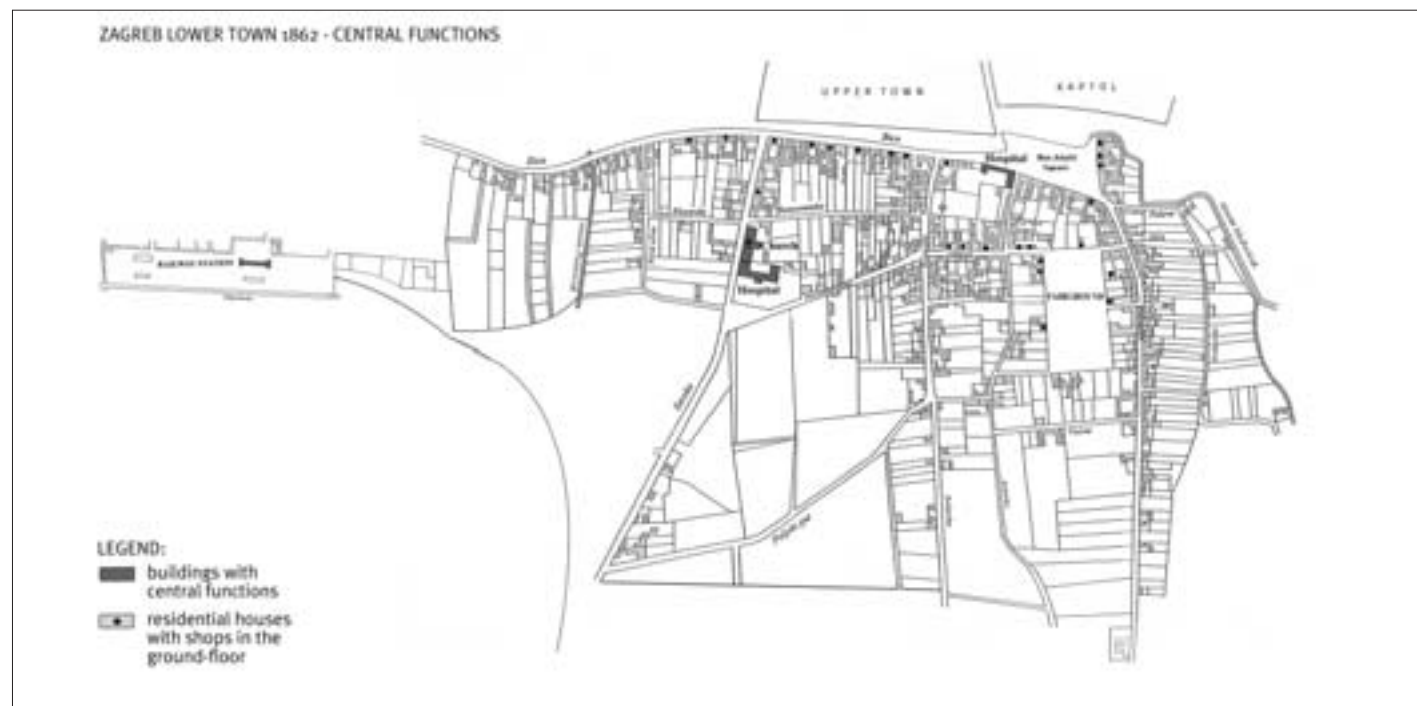
<sup>11</sup> DESPOT, 1970: 148

<sup>12</sup> DOBRONIC, 1983: 326

<sup>13</sup> DOBRONIC, 1983: 204

<sup>14</sup> KNEZEVIC, 1996: 618

<sup>15</sup> DOBRONIC, 1983: 45



tional town structure is typical for the early phase of urbanization with its basic trait of mix-purposed land use. The majority of shops are located on the ground floor of residential buildings along Ilica and Nikolićeva Street (today Teslina Street). These two streets are still the most important shopping areas in the Lower Town. Other two locations of buildings with central functions are two squares: Ban Jelčić Square – the main town square which used to be the market place in the period between 1681 and 1826, and Novi trg (meaning New Square, today Nikola Šubić Zrinski Square), which had the same function from 1826 to 1870. The main trade zones were thus predetermined by the traffic importance of certain street as well as the location of the market place as the main pull-factor.

State and public institutions were still located only within the historic cores of the Upper Town: the state, county and town administration, military administration, post office, grammar school, primary schools, banks, theatres and numerous artisan shops. It is indicative that the whole area of the Lower Town in 1862 did not have any schools in 1862.<sup>16</sup> The rapid development of the Lower Town by 1862 was

therefore not followed by an adequate increase of its central functions. In this stage of its growth, the town was still strongly connected with its rural surroundings. In the next few decades the arrival of the railway and the industrial development encouraged the need of functional differentiation of the town area, i.e. of creating separate functional town zones.

#### Building Heights and Building Material – A

further important element of the morphological town structure is the height of buildings. The data gained from the cadastre register have given an insight into the three-dimensional layout of the town. The details relating to the number and height of the buildings in 1862 indicate that one-storey and two-storey houses prevailed, while there were few three- and four-storey buildings. It is also noticeable that the height of houses followed the orientation of urban growth, being the highest in the zone of the most immediate town core. The construction density was also larger along Ilica Street. In this respect, the Construction Regulations introduced in 1857<sup>17</sup> had an important role prescribing construction of houses one next to another not allowing any interspace between them. In the original cadastral plan the buildings are distinguished by their colour: yellow shows wooden buildings and red shows brick buildings. Even by 1862 the number of wooden buildings was already relatively small, although it grew with the distance from the town centre.

FIG. 3 ZAGREB, LOWER TOWN, 1862 – CENTRAL FUNCTIONS

SL. 3. ZAGREB, DONJI GRAD, 1862. – CENTRALNE FUNKCIJE

<sup>16</sup> At that time, there were two primary schools in Zagreb, one in Kaptol and one in the Upper Town as well as a grammar school, also located in the Upper Town. It was only in 1865 that the Lower Town got its first primary school in Samostanska Street (today Varšavska Street). Compare: Božić, 1942: 346-348

<sup>17</sup> \*\*\* 1857.

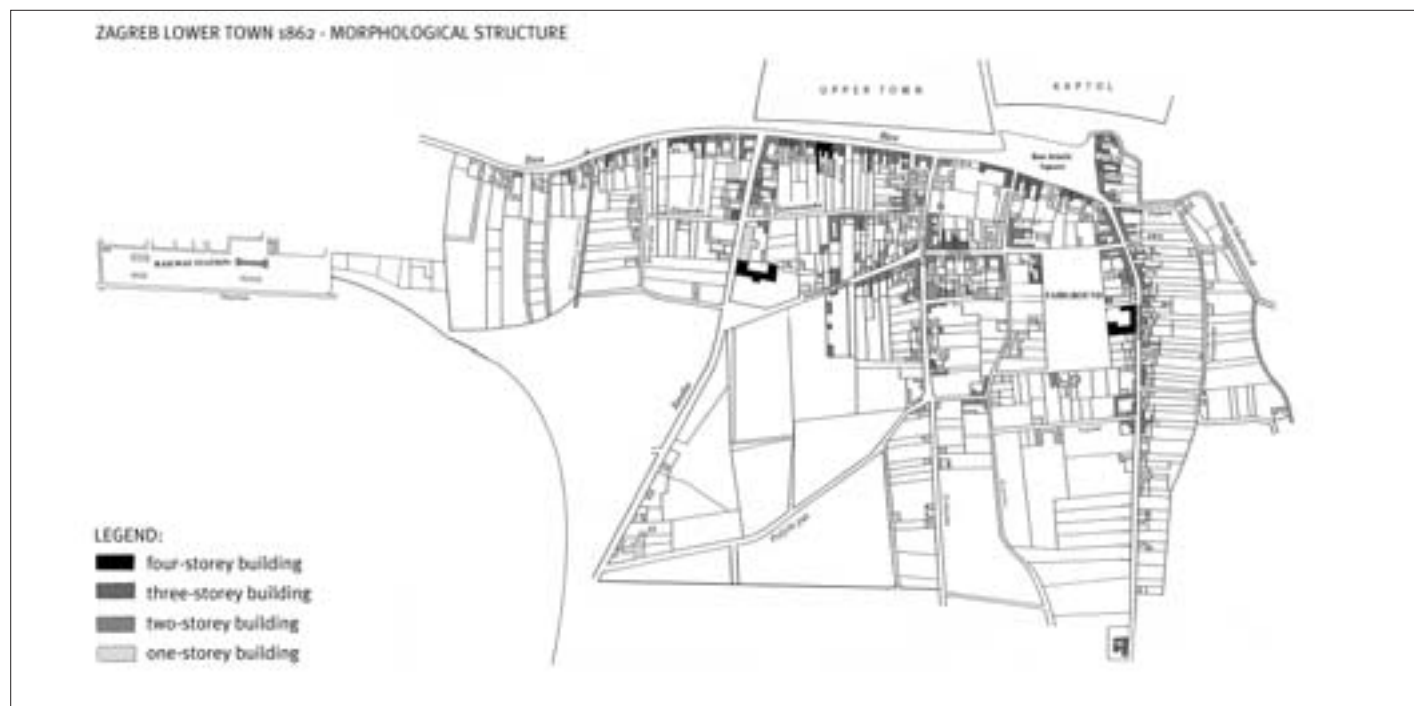


FIG. 4 ZAGREB, LOWER TOWN, 1862 – MORPHOLOGICAL STRUCTURE

SL. 4. ZAGREB, DONJI GRAD, 1862. – MORFOLOŠKA STRUKTURA

**Undeveloped Areas** – The cadastre register also gives us an insight into the land use of undeveloped areas. At the time of the first survey, almost half of the Lower Town area was still an agricultural zone. Most of dwellings had back yards, usually named „kitchen gardens”. They represented the most widely spread agricultural pattern of the Lower Town, typical for peripheral housing zones: vegetable gardens with small farm buildings. In this way the population that lived in the urbanized parts of the district was actively engaged in agriculture.

Plough-fields and meadows were located at greater distances from the Lower Town. The zone of intensive agricultural production was located next to the housing area, while more distant locations had much more extensive agricultural cultivation. Agricultural parcels located immediately next to the buildings have much lesser average size than the parcels in peripheral areas of the Lower Town. This is the result of their more intensive division as well as the initial process of transformation into building lots.

#### STATISTICAL SURVEY OF THE URBAN STRUCTURE OF THE LOWER TOWN IN 1862

##### STATISTIČKI ISKAZ URBANE STRUKTURE DONJEGA GRADA 1862. GODINE

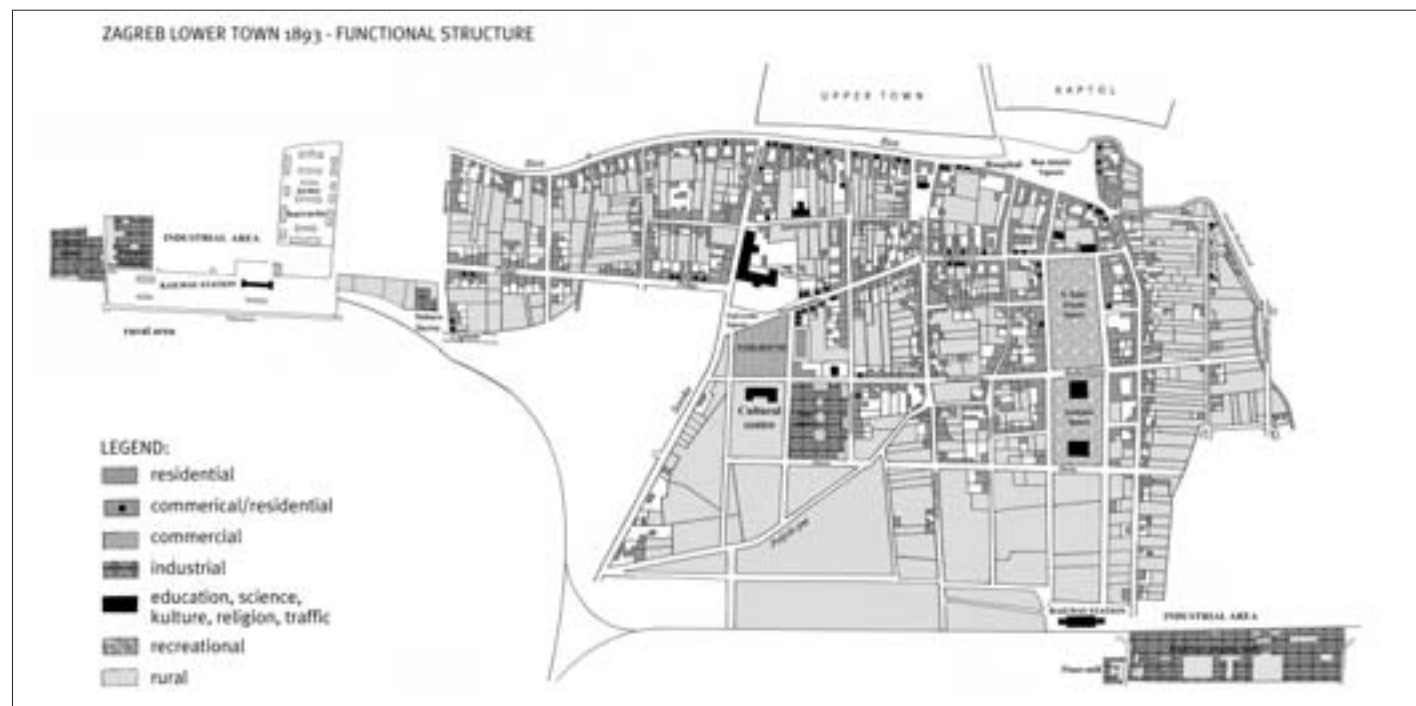
Statistical data contained in the cadastral register enable us to examine the urban structure in an exact manner. Out of 323 houses, 188 were one-storey buildings (58,2% of all houses in the

Lower Town), 103 two-storey buildings (31,9%), 29 three-storey buildings (9,0%) and 3 four-storey buildings (0,9%). Overall, in the year of the first cadastral survey, 40,5% of total area of the Zagreb Lower Town was built-up (including houses, industrial sites, streets and squares).

In 1862 the processes of development in the Lower Town are still at an early stage, since more than half of the area, or more precisely 59,6%, was being used for agriculture. Gardens and plough-fields were areas with the most intensive cultivation. In 1862 in the Lower Town area there were 285 gardens accounting for 33% of the total Lower Town area. They are followed by 28 plough-fields accounting for 16,6% of the total Lower Town area. The share of orchards, pasture grounds and parks in 1862 was less than 1%.

Taking into consideration the presented structure of the Zagreb Lower Town, we come to the conclusion that the railway did not yet affect the functional and morphological structure, so that the town had the structure of a pre-industrial town, which was about to enter the stage of development characterized by the arrival of railway.

The town was developing spontaneously without any central urban basis and the dominant direction of construction (works) was determined by the east-west vehicular traffic direction. In the newly built parts of the Lower Town there was no distinct zoning, yet a cell-structure was clearly recognizable as the characteristic feature of a pre-industrial town.



### EARLY STAGE OF INDUSTRIALIZATION OF ZAGREB IN CADASTRAL SOURCES OF 1893

#### RANA FAZA INDUSTRIJALIZACIJE ZAGREBA U KATASTARSKIM IZVORIMA IZ 1893. GOD.

Economic growth was stimulated by railway connection in the latter part of 19<sup>th</sup> century and it strongly affected the urban structure of the Lower Town, which began to assume the features of an industrial town. Industrialization became the basis of town development, and the railway, especially the location of the new central railway station, started to influence the dominant directions of town development. The railway also became the basic pull-factor for the location of industry.

However, the railway station did not just stimulate industrial location, but also encouraged general development and construction of the whole western part of the Lower Town. Moreover, the market, now situated in the western part of the Lower Town (then Univerzitetski trg, i.e. University Square, today Maršal Tito Square), located there from 1870 to 1893, contributed even more to the growth of this part of town. After the opening of the railway station in 1862, the zone between the market and the rail-

way station became the area with the most dynamic development in the whole town district.<sup>18</sup> Due to the above changes in the town development, in the period of only ten years, the Lower Town completely changed its functional and morphological features, taking over the functions of the town centre. In 1893 Zagreb had approximately 50 000 inhabitants.<sup>19</sup>

Comparing the spatial pattern of built-up and undeveloped areas of 1893 with those of 1862, we notice a certain development, which Zagreb experienced after the arrival of the railway. In functional terms the largest part of the Lower Town was now represented by residential and business town zones, while agricultural areas had been displaced to the very edge of the region. Of all the streets of the Lower Town, the street connecting the market place with the railway station (today Prilaz Gjura Deželica) was characterized by the most rapid construction of new buildings. Another zone of very intensive construction was the area along the eastern side of the „green horseshoe” (Nikola Šubić Zrinski Square and Akademski trg, i.e. Academic Square).<sup>20</sup> Its layout during that period was a real stimulus to construct a series of the most representative palaces and public institutions, which still represent symbols of the Lower Town. However, the dominant axis of development remained in the east-west direction.

The biggest novelty in the functional structure of peripheral parts of the Lower Town was by all means the springing up of industrial areas.

FIG. 5 ZAGREB, LOWER TOWN, 1893 – FUNCTIONAL STRUCTURE

SL. 5. ZAGREB, DONJI GRAD, 1893. – FUNKCIONALNA STRUKTURA

<sup>18</sup> SLUKAN, 1999: 56

<sup>19</sup> KORENČIĆ, 1979: 767

<sup>20</sup> The „green horseshoe” is a popular name for large parks in the central part of the Zagreb Lower Town. Together they make up a large green area in shape of a horseshoe.



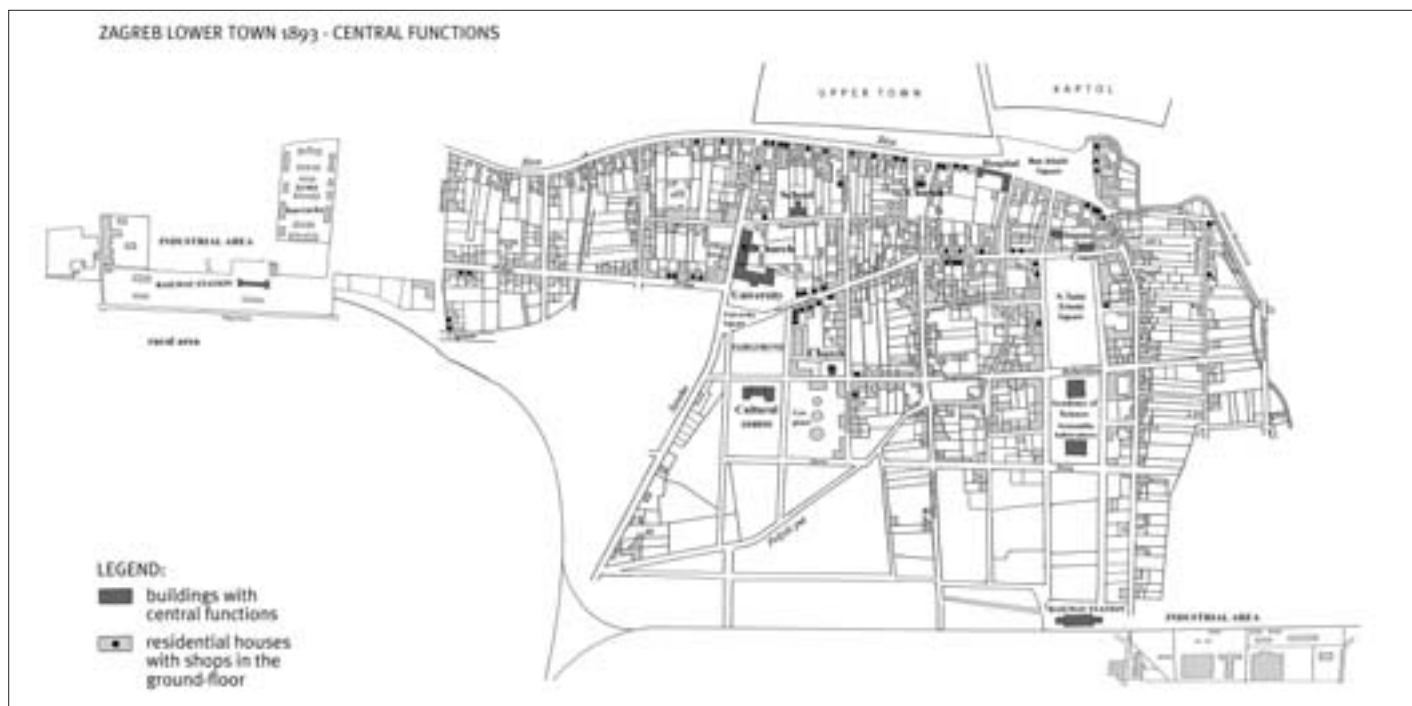


FIG. 6 ZAGREB, LOWER TOWN, 1893 – CENTRAL FUNCTIONS  
SL. 6. ZAGREB, DONJI GRAD, 1893. – CENTRALNE FUNKCIJE

The location of the railway tracks and stations initiated a land use shift from agricultural to industrial areas of the town of Zagreb, which were located in the area around the two railway stations. In the period of 1862-1893 some ten factories were opened, which became an important factor in the economic development of the town. Since 1873 a number of factories were opened in the zone around the west railway station (more precisely in the part west from the Lower Town named *Ciglenica*): the Parquet Factory (*Tvornica za parkete i kućno stolarstvo*) in 1873,<sup>21</sup> Timber Processing Factory (*Parna pilana Pongratz*) in 1874, Tobacco Factory (*Tvornica duhana Zagreb*) in 1881,<sup>22</sup> Chicory Factory (*Tvornica cikoriije i kavinih surogata Franck*) and Silk Processing Factory (*Kr. zemaljska bubara u Zagrebu*) in 1893<sup>23</sup> and the Soap Factory (*Zagrebačka dionička tvornica sapuna*) in 1895 (in the area west from the scope of the attached maps).<sup>24</sup> All of them are located in the western part of town in the vicinity of the railway station built in 1862, along the railway tracks.

Next to these industrial installations, a certain number of military barracks were built in the same part of town, which also used the advantage of railway traffic. Since the mentioned industrial installations were built on former agricultural parcels previously fragmented through numerous land divisions, the average size of industrial parcels was relatively small (in 1893 in the west part of town it amounted to 979 klafters). It was only at the

beginning of 20<sup>th</sup> century that industrial parcels began to merge.

After the construction of the railway station in the southern outskirts of the Lower Town in 1892, a large industrial area was built in the following year intended for the Railway engine hall, whereas the Steam-powered flour-mill (*Kraljevski povlašteni parni i umjetni mlin*) was built right next to the railway station in 1862. Industrial companies started building their plants by buying up agricultural parcels. This period is characterized by retaining smaller residential and agricultural areas within the industrial ones. The average size of industrial areas is somewhat bigger in the southern than in the western industrial area. This was namely a piece of land that had been purchased by the Railway already in 1870 for the construction of railway tracks to Budapest. Therefore the land division of parcels was stopped. As a result of these processes, the average size of industrial parcels in this area amounted to 1 acre 417 klafters in 1893.

The only industrial area that was still incorporated into the residential zone of the Lower Town in 1893 was the Gas Plant (*Plinara*

<sup>21</sup> DOBRONIC, 1983: 324

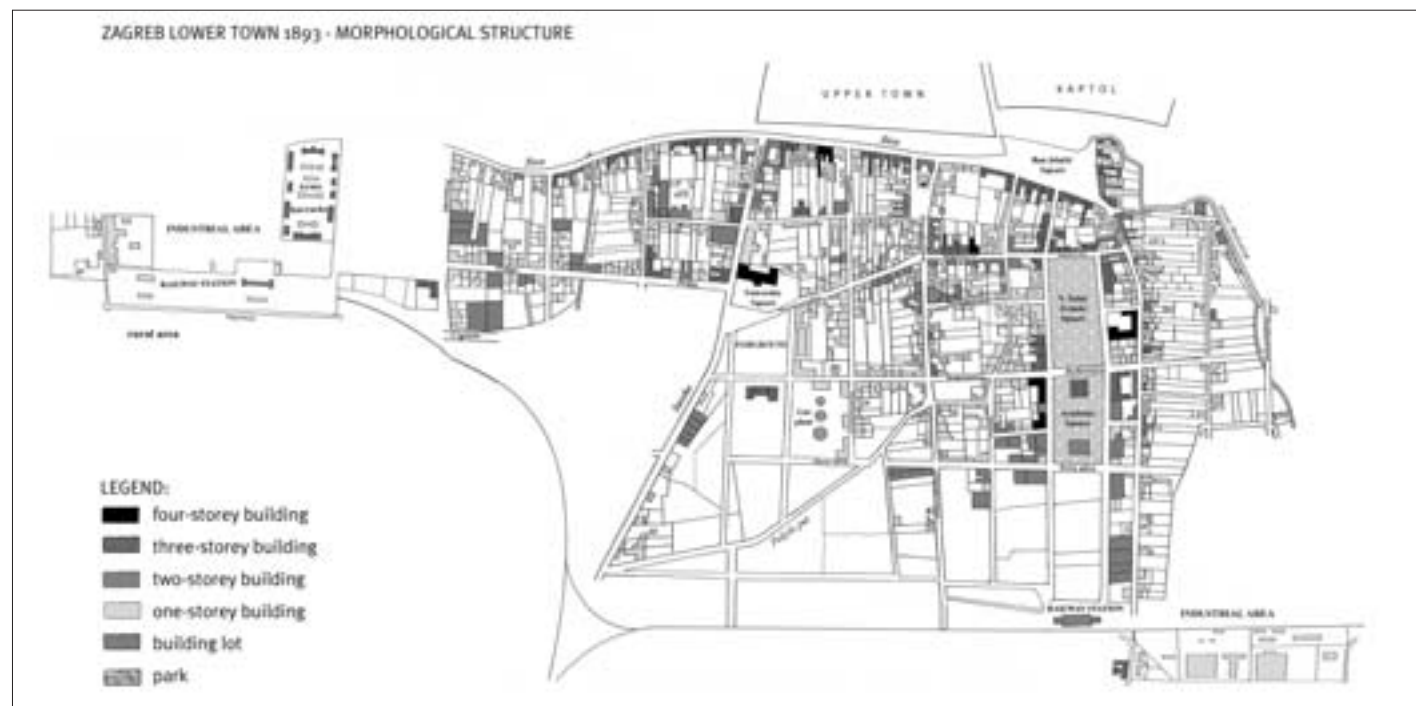
<sup>22</sup> DOBRONIC, 1983: 326

<sup>23</sup> DOBRONIC, 1983: 329

<sup>24</sup> DOBRONIC, 1983: 330

<sup>25</sup> DOBRONIC, 1983: 321

<sup>26</sup> DAZ-GVO – *Obrazloženje potrebe i načina kako da se uredi slobodni i kraljevski glavni grad Zagreb i kako da se*



*općine slob. i kralj. glavnog grada Zagreba*). With the development of the Lower Town it was relocated outside the Lower Town in 1911. At the time of its construction (1863) there were no other major industrial plants it could be connected to, so that its location was determined primarily by the needs of the residential zone of the Lower Town. In 1863 the Gas Plant was built in the outskirts of the urbanized zone.<sup>25</sup>

**Street Pattern** – In the meantime, two town-planning documents were issued, which established the idea of orthogonal structure of the Lower Town. The first town-planning map was implemented in 1865<sup>26</sup> and the second in 1887.<sup>27</sup> Those town-planning documents determined the present orthogonal street pattern of the Lower Town as well as three and four-storey buildings structured in blocks. The second town-planning document, implemented in 1887, adopted the regulations from the first town-planning map. Following the regulations of the town-planning documents of 1865 and 1887, old streets were widened and adapted to the more intensive traffic. Direction of old streets was straightened out, since not many houses had been built there (the south-

ern part of Gajeva, Draskovićeva and Palmoticeva Street). The previously built-up streets (Novomarska i.e. today Masarykova Street; Samostanska i.e. today Varšavska Street, the north part of Gajeva Street, the north part of Petrinjska Street and Illica) retained its irregular pattern. The regulations of 1865 and 1887 required construction of some entirely new streets (Marija Valerija Street i.e. today Praska Street and Gundulićeva Street) as well as construction of a series of squares with horticultural surfaces, which were known under the common name of „green horseshoe” (which is made up of a series of squares: Nikola Šubić Zrinski Square, Akademski trg i.e. Academic Square,<sup>28</sup> Franjo Josip I Square,<sup>29</sup> Antun Starčević Square, Botanical Garden, Marko Marulić Square, Ivan Mažuranić Square and Univerziteti trg i.e. University Square).<sup>30</sup> Ideas were partly implemented by 1893, giving the street pattern of the Lower Town a more regular structure. Regulations for the south part of the Lower Town were implemented by the beginning of 20<sup>th</sup> century.

**Central Functions** – As a result of the transformation of the Lower Town in the period between 1862 and 1914, many of central functions, which were concentrated within the Upper Town earlier on, were now transferred to the area of the Lower Town. Nevertheless, the traditional importance of the Upper Town regarding its administrative functions has been preserved until the present day. Some of the state and town institutions are still located here. However, after 1862 the Lower Town

FIG. 7 ZAGREB, LOWER TOWN, 1893 – MORPHOLOGICAL STRUCTURE  
SL. 7. ZAGREB, DONJI GRAD, 1893. – MORFOLOŠKA STRUKTURA

ovo uređenje uz postupno razprostranjivanje grada sred-stvom statuta olakšati i osigurati

<sup>27</sup> DAZ-GVO – Obrazloženje regulatorne osnove grada Zagreba i predlozi za odobrenje i provedenje iste

<sup>28</sup> Today Josip Juraj Strossmayer Square

<sup>29</sup> Today Kralj Tomislav Square

<sup>30</sup> Today Marsal Tito Square

was not only the centre of trade and crafts, but also became a zone where many institutes and symbols of state power were located. The building of Academy of Science (*Jugoslavenska akademija znanosti*) finished in 1879 on Akademicki trg (Academic Square, today Josip Juraj Strossmayer Square),<sup>31</sup> the University opened 1882 (in the building of the former hospital on Univerzitetski trg i.e. University Square, today Marsal Tito Square),<sup>32</sup> the new railway station (*Kolodvor Kraljevske državne željeznice*) finished in 1892 on Franjo Josip I Square (today Kralj Tomislav Square),<sup>33</sup> the Court (*Kraljevski sudbeni stol*) on Nikola Šubić Zrinski Square in 1878,<sup>34</sup> Cultural Centre (*Dom Hrvatskog sokola i kola*) on Ivan Mažuranić Square in 1883,<sup>35</sup> The First Croatian Savings-Bank (*Prva hrvatska štedionica*) on Ban Jelačić Square in 1870<sup>36</sup> and many other state and town institutions were located there.

Construction of the railway station in the southern outskirts of the town played an important role in the construction and development of the Lower Town. It became a new pull-factor in the construction of this part of town. Another major pull-factor was the market place located on Univerzitetski trg i.e. University Square (today Marsal Tito Square) from 1870 to 1893. Reflecting the strengthening of central functions of the Lower Town in the period between 1862 and 1893, two new churches were built: Eastern Orthodox Church of Transfiguration built in 1866<sup>37</sup> and the evangelical church in Kukoviceva Street (today Hebrangova Street) built in 1882, as well as the synagogue completed in 1867 in Marija Valerija Street (today Praska Street).

The increase in the number of central functions that the Lower town got in the period from 1862 to 1893 clearly indicates the increasing dominant position and importance of that area. As a reflection of this development, in 1865 the first primary school was located in Samostanska Street (today Varsavska Street). At the same time along the railway tracks and in the vicinity of the station, the industrial zone started to develop. During this period a functional differentiation thus started to take place, enabling us to identify three distinct town zones with different functions: the industrial zone close to the railway station; the residential, trade and business zone in the Lower Town (still joined) and the state administration zone in the Upper Town of Zagreb.

**Building Heights** – The cadastral register indicates that the number of one, three and four-storey buildings was increased. A noticeable increase of single-storey houses in this period resulted from more intensive construction works in the peripheral parts of the Lower Town where building of single-storey houses was allowed. On the other hand, the

buildings within the centre of the Lower Town are two and three-storey buildings as a rule. The town-planning regulation of 1865 required all newly built structures between Savska Street in the west and Petrinjska Street in the east to be at least two-storey buildings. Construction of one-storey and single-storey houses was allowed in the east and west from those streets. The cadastral register of 1893 also records one new category of land use which is very indicative – building lots (construction sites). The appearance of this category of land status clearly reflects the changes that occurred in the period between 1862 and 1893. Construction sites are mainly located along the new horticultural public area (the so-called „green horse-shoe”) and in the west Lower Town area, pointing out the dominant directions of town construction.

**Undeveloped Areas** – The transformation of former meadows and fields into parks made the Lower Town the most attractive part of town. The horticultural layout of the Lower Town reflected and supported the town development. Most houses still had back yards, but their size was smaller. The plough-fields almost disappeared and could be found only in the southern and western regions; meadows were located in the western parts of the future park regions, i.e. on Marko Marulić Square and Ivan Mažuranić Square, where modification lasted for several years. The area of the Lower Town in 1893 was largely used for housing and business, holding important traffic and central functions. Agricultural functions were minimized, mainly as outlying garden cultures. Back yards continued to exist in the southern and eastern parts of town, regions which at the time showed the slowest progress of construction development.

#### STATISTICAL SURVEY OF THE URBAN STRUCTURE OF THE LOWER TOWN IN 1893

##### STATISTIČKI ISKAZ URBANE STRUKTURE DONJEG GRADA 1893. GOD.

In the period between 1862 and 1893 the number of houses in the Lower Town increased from 323 to 544 (+68,4%). Out of a total of 393 one-storey brick buildings 205 were new (+91,7%), the number of two-storey buildings remained the same (103) and 13 new three-storey buildings from a total of 42

<sup>31</sup> KNEŽEVIC, 1996: 439

<sup>32</sup> KNEŽEVIC, 1996: 618

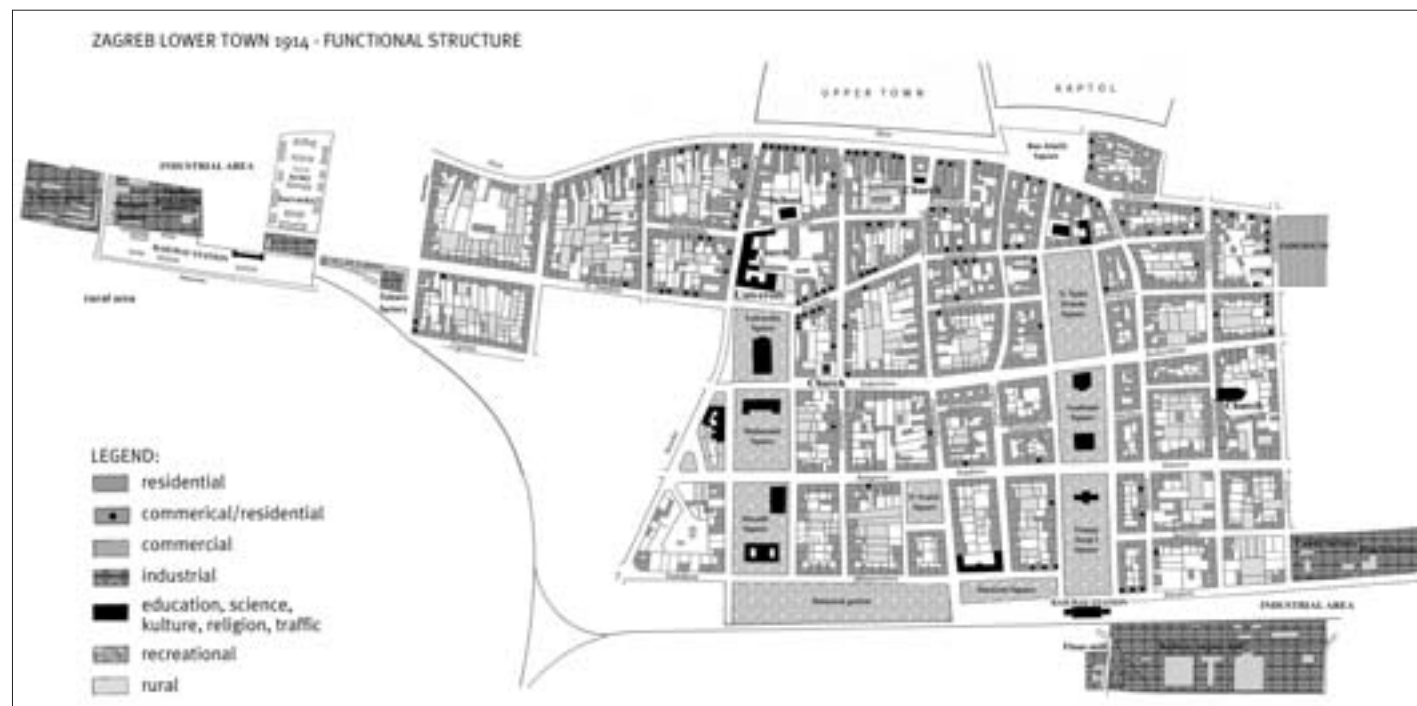
<sup>33</sup> KNEŽEVIC, 1996: 494

<sup>34</sup> KNEŽEVIC, 1996: 432

<sup>35</sup> KNEŽEVIC, 1996: 606

<sup>36</sup> DOBRONIC, 1983: 74

<sup>37</sup> This is not the first church on this location. The Eastern Orthodox Church bought an abandoned old catholic



were constructed (+44,8%). 3 four-storey buildings were erected, so that there were 6 in 1893 (+100%). 48 construction sites should also be added to this number, as these are indicated for the Lower Town area in 1893.

In the period from 1862 to 1893 the average size of cadastral parcels in the Lower Town area was considerably reduced (from 400 klafters, the average size of parcels in the Lower Town in 1862 to 250 klafters, the average in 1893). Changes in the average size of parcels indicate fragmentation of property as a result of restructuring agricultural land into building lots.

### ZAGREB AS AN INDUSTRIAL TOWN ACCORDING TO THE SOURCES OF THE SECOND CADASTRAL SURVEY IN 1914

#### ZAGREB KAO INDUSTRIJSKI GRAD U KATASTARSKIM IZVORIMA DRUGE IZMJERE IZ 1914. GODINE

At the beginning of the 20<sup>th</sup> century, the economic growth of Zagreb stimulated by indus-

trial development turned the town into one of the strongest industrial centres of the south-eastern Europe. Industrialization encouraged demographic growth and spatial development of the town. In 1914 Zagreb had 85 000 inhabitants and 108 industrial companies employing about 7000 industrial workers.<sup>38</sup> An additional impulse for industrial development was also the construction of the railway Zagreb-Kaniža-Budapest, resulting in intensification of traffic functions of the Zagreb Lower Town. A new railway station was built at the south edge of the Lower Town. The station at that location encouraged development southwards so that the „green horseshoe” in the central part of the Lower Town became the zone with the most representative buildings. At the same time, a new industrial area continued to develop adjacent to the new railway station.

church of St Margaret on public sale in 1794. After its reconstruction, the church is renamed and became the parish church of Transfiguration (*Preobraženja Gospodnjeg*). This church was abandoned and pulled down around 1864, and the new church of Transfiguration was built in 1866 based on the project of Franjo Klein (this new church was reconstructed by Hermann Bollé in 1899 and 1913).

<sup>38</sup> Due to highly dynamic town development, construction industry became one of the strongest industrial branches.

trial development turned the town into one of the strongest industrial centres of the south-eastern Europe. Industrialization encouraged demographic growth and spatial development of the town. In 1914 Zagreb had 85 000 inhabitants and 108 industrial companies employing about 7000 industrial workers.<sup>38</sup> An additional impulse for industrial development was also the construction of the railway Zagreb-Kaniža-Budapest, resulting in intensification of traffic functions of the Zagreb Lower Town. A new railway station was built at the south edge of the Lower Town. The station at that location encouraged development southwards so that the „green horseshoe” in the central part of the Lower Town became the zone with the most representative buildings. At the same time, a new industrial area continued to develop adjacent to the new railway station.

The dominant direction of construction and development of the Lower Town was determined by the only undeveloped zone of the area, which was the peripheral south and east part of the Lower Town. In those areas the construction density was still scarce. Those parts were also the area with the most intensive transformation characterized by construction of new two and three-storey buildings. The majority of registered building lots were located in that zone. It should be mentioned that other parts of this area also had building lots, where new buildings were interpolated into the already developed zone (for instance along Illica). Construction of

FIG. 8 ZAGREB, LOWER TOWN, 1914 – FUNCTIONAL STRUCTURE

SL. 8. ZAGREB, DONJI GRAD, 1914. – FUNKCIONALNA STRUKTURA



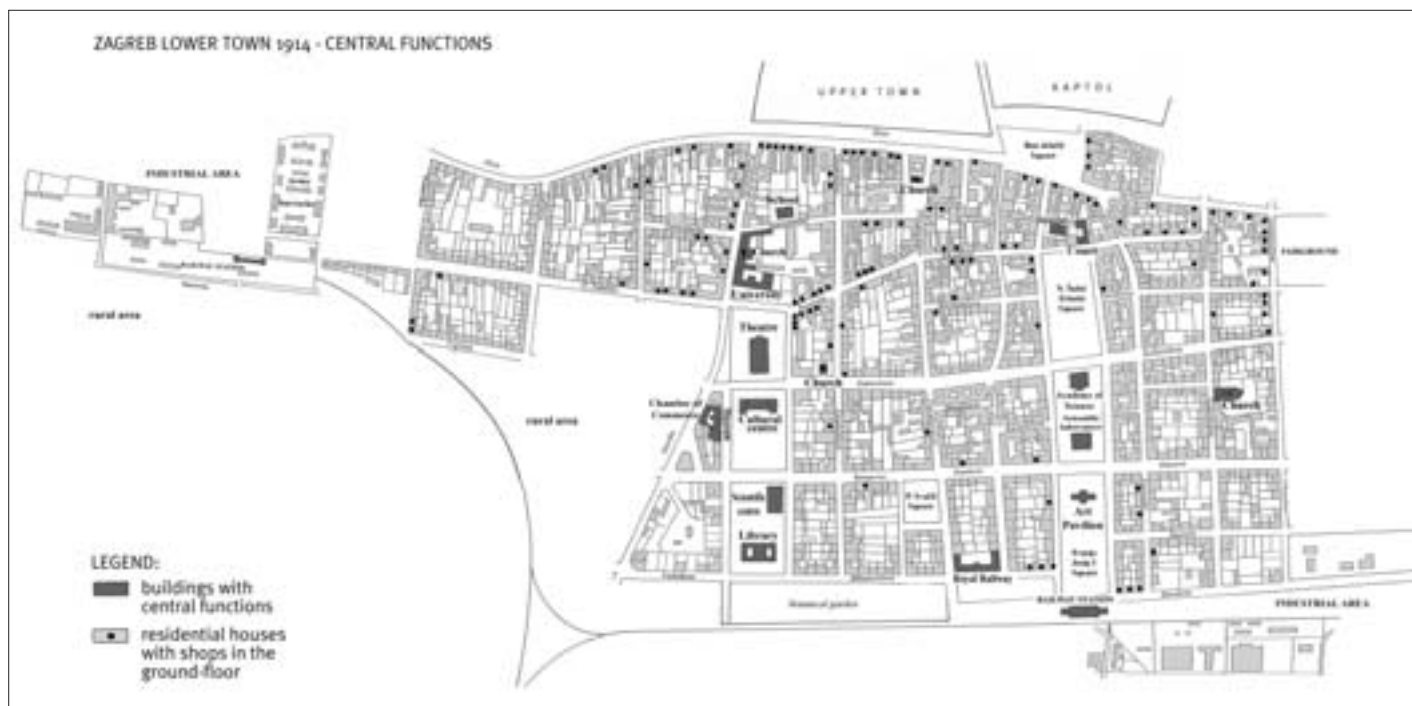


FIG. 9 ZAGREB, LOWER TOWN, 1914 – CENTRAL FUNCTIONS  
SL. 9. ZAGREB, DONJI GRAD, 1914. – CENTRALNE FUNKCIJE

these parts was a logical continuation of the dominant direction of transformation and construction observed in the previous period, i.e. along the streets leading to the new railway station and market place. In line with this development, the zone of the most noticeable transformation in this period was the line Vodnikova-Mihanoviceva-Baroševa Street (today Branimirova Street), i.e. the junction of the important traffic point of Savska Street with the railway station as well as Draškovićeve and Palmotičeva Street and the eastern parts of Boškovićeve, Hatzova and Senoina Street leading towards the market place. In this phase of development of the Lower Town the space for new construction had almost been exhausted, due to its expansion almost to the railway tracks. After construction of Vodnikova Street the town started expanding laterally, especially towards the eastern part of the town district.

In the period from 1893 to 1914 a lot of new industrial installations were erected, since industry had become the major pull-factor in town development. New industrial plants in this period were mostly built in the immediate vicinity of the railway infrastructure. In the outskirts of the western industrial area (in the region called *Pod Svetim Duhom*), a big Soap Factory (*Zagrebacka dionicka tvornica sapuna*) was built in 1895.<sup>39</sup> Adjacent to the south railway station (in Baroševa Street, today Branimirova Street) the Ballpoint Factory (*Tvornica Penkala-Edmund Moster d.d.*) and the Candy Factory (*Tvornica kandida*) were built in 1911.<sup>40</sup>

Residential and agricultural parcels were still present within industrial areas to a smaller degree, although much less frequently than in 1893. By displacing other functions, the parcels with industrial functions became noticeably larger. Industrial companies namely purchased the neighbouring agricultural properties to expand their production, after which certain parcels were merged. The average size of industrial parcels in the western industrial zone amounted to 2 acres and 727 klafters, whereas in the southern area 5 acres and 660 klafters. Larger average size of industrial parcels in the southern industrial area is the result of large average parcels in the area of railway engine-hall. In general, the average size of industrial parcels owned by state companies like the Railway was much larger than the size of privately owned firms. State companies could carry out land consolidation of the neighbouring agricultural areas to expand their production.

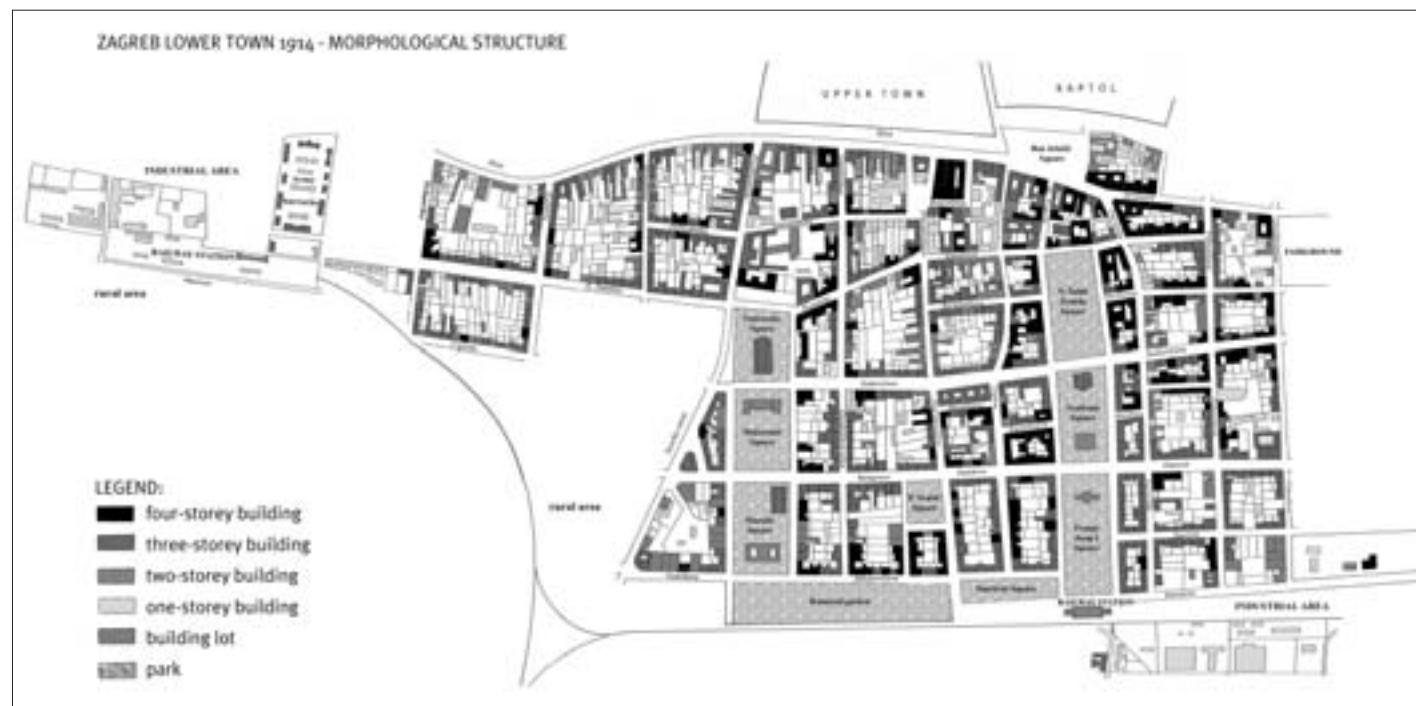
At the time of intensive growth of the Lower Town in direction south, certain factories soon found themselves within the residential zone of the town. This primarily refers to the Gas Plant, which was relocated to the south-eastern peripheral area, far from the residential zone, in 1911 due to ecological rea-

39 DOBRONIC, 1983: 330

40 CUVAJ, 1967: sv. 3

41 KNEZEVIĆ, 1996: 620

42 KNEZEVIĆ, 1996: 590



sons. At the same time, industrial installations built up along the railway tracks have remained there until the present day to a certain degree, which is a big problem for the town planning in respect of this part of town in the vicinity of the railway tracks.

**Street Pattern** – By the end of 1914 the street pattern with the prescribed orthogonal scheme was mostly formed. As a continuation of this strict scheme, Vodnikova, Mihanovićeve, Baroševa and Kurelceva Street were shaped, Jurišićeva Street was regulated as well as the north part of Draskovićeve and Palmotičeva Street. *Poljski put* (Field Road), a remainder of the former irregular street structure, completely disappeared from the street pattern. Ban Jelačić Square was also regulated after the regulation of the Medveščak Stream, moving the whole construction axis of the northern part of the square to the south, somewhat reducing the total surface of the square. Petar Preradović Square also underwent construction works which gave it the present scope, after which Bogovićeve Street was formed. Regulation of the „green horseshoe” was squared away by final adjustments of Antun Starčević, Marko Marulić and Ivan Mažuranić Square, thus forming the present morphological structure of the Lower Town.

**Central Functions** – The characteristics of the Lower Town as a zone of representative public buildings continued during this period. After the development of the area along the parks of the „green horseshoe”, it became a central zone of the public institutions. At the end of the 19<sup>th</sup> century and at the beginning of the 20<sup>th</sup> century, a large number of monumental buildings were constructed there: the National Theatre (*Hrvatsko zemaljsko kazalište*) in 1895,<sup>41</sup> the Art Pavilion (*Umjetnički paviljon*) in 1898, the Museum of Arts and Crafts (*Trgovačko-obrtni muzej*) in 1903,<sup>42</sup> the Chamber of Commerce (*Trgovačko-obrtnička komora*) in 1903,<sup>43</sup> the building of the Royal Railway (*Poslovna uprava Kraljevske državne željeznice*) in 1903,<sup>44</sup> the University Library (*Kraljevska sveučilišna knjižnica*) in 1914<sup>45</sup> and the Pharmacological Institute (*Kr. Sveučilišni ljudžbeni i farmakološki zavod*) in 1913.<sup>46</sup>

Reflecting the urbanization of the eastern part of the Lower Town, the church in Palmotičeva Street was built in 1902. In the period from 1893 to 1914 in the Lower Town area there was a considerable increase in the number of shops opening in both southern and eastern parts of town. Apart from traditional commercial streets, a great number of shops appear in Draskovićeve Street (in the vicinity of the market place) as well as in the southern outskirts of the town (adjacent to the railway station). The trading function was still going on primarily on the ground floor of residential buildings. As a result of construction in the western part of the Lower Town, where numerous public

FIG. 10 ZAGREB, LOWER TOWN, 1914 – MORPHOLOGICAL STRUCTURE  
SL. 10. ZAGREB, DONJI GRAD, 1914. – MORFOLOŠKA STRUKTURA

43 KNEŽEVIĆ, 1996: 611

44 KNEŽEVIĆ, 1996: 526

45 KNEŽEVIĆ, 1996: 574

46 KNEŽEVIĆ, 1996: 572

TABLE 1 LAND USE OF ZAGREB LOWER TOWN 1862-1914  
TABL. 1. NAČIN KORIŠTENJA POVRŠINA K.O. ZAGREB  
DONJI GRAD 1862.-1914.

Undeveloped area	Number of parcels (frequency)			Share in total area of Lower Town (%)				
	1862	1893	1914	1862	1893	1862-1893	1914	1893-1914
plough-field	28	16	1	16,6	8,07	- 8,5	0,4	- 7,7
garden	285	298	212	33,3	22,20	- 11,1	9,5	- 12,7
meadow	10	8	3	8,3	4,40	- 3,8	0,1	- 4,3
orchard	9	-	-	0,5	-	- 0,5	-	-
pasture land	4	1	3	0,1	0,04	- 0,1	0,2	+ 0,1
park	5	5	9	0,4	4,26	+ 4,7	12,9	+ 8,6
waste land	13	-	-	0,4	-	- 0,4	-	-
Total undeveloped area	352	328	228	59,6	38,60	- 21,0	22,7	- 16,2

built-up area	Number of parcels (frequency)			Share in total area of Lower Town (%)				
	1862	1893	1914	1862	1893	1862-1893	1914	1893-1914
one-storey	188	393	62	10,7	20,3	+ 9,6	2,2	- 18,2
two-storey	103	103	133	7,6	7,6	-	9,2	1,6
three-storey	29	42	388	4,1	5,1	+ 1,0	29,4	+ 24,3
four-storey	3	6	207	0,4	0,7	+ 0,3	13,1	+ 12,4
building lot	-	48	28	-	5,9	+ 5,9	2,6	+ 3,3
religious objects	1	4	5	0,3	0,4	+ 0,1	0,4	-
industrial objects	-	1	-	-	0,6	+ 0,6	-	- 0,6
streets and squares	80	99	107	17,3	21,3	+ 4,0	20,5	- 0,8
Total built area	404	687	931	40,5	61,2	+ 20,7	77,4	+ 16,2
Total Lower Town	756	1024	1158	100,0	100,0	-	100,0	-

buildings were built (University, National Theatre, Cultural Centre), in 1893 the market place was relocated outside the Lower Town to its eastern outskirts. This new location of the marked place brought about rapid development in the subsequent time period.

**Building Heights** – Due to a large habitation demand, building regulations prescribed construction of only three- and four-storey buildings. At the beginning of 20<sup>th</sup> century, the Lower Town became a three- and four-storey building area. Four-storey buildings were mostly represented in the northern parts of the Lower Town and along the „green horse-shoe“. Three-storey buildings were dominant in the whole zone, covering the largest parts of the built-up area. Two-storey houses were located mostly in the outskirts (Ilica, Primorska and Ciglana).<sup>47</sup> Building lots were situated among the only free parcels in the southern region. The town-planning regulations did not only lay down stipulations concerning construction height. Buildings were required to have a unique construction axis and had to form a continuous line without interspaces and outside courtyards. Accordingly, buildings were constructed in groups and town blocks were formed. In 1914 almost all buildings were made of bricks and wooden houses were very rare – exceptions could only be found in courtyards of single buildings.

**Undeveloped Areas** – Due to the construction rules, which did not permit gardens along the

streets, gardens were only present in back yards. Nevertheless, there were several exceptions: alongside Mihanovićeve Street and Mar-ko Marulić Square, i.e. between certain streets which were important for traffic like Savska Street and alongside Draskovićeve and Palmo-ticeve Street, particularly near the area close to the market place, which was moved to the east-ern edge of the town in 1891. The only undevel-oped parcels could be found in the far southern and eastern areas of the town. The industrial function thus disappeared as well as the agri-cultural one, leaving the Lower Town as a zone of business, trade and residential functions.

STATISTICAL SURVEY OF THE URBAN  
STRUCTURE OF THE LOWER TOWN IN 1914

STATISTIČKI ISKAZ URBANE STRUKTURE  
DONJEG GRADA 1914. GODINE

In the area of the Lower Town 346 three-sto-rey, 201 four-storey and 30 two-storey houses were built between 1893 and 1914, while the number of buildings with only one-storey houses was reduced by 331. So in 1914 the Lower Town had 62 one-storey build-ings, 133 two-storey, 388 three-storey and 207 four-storey buildings. The sudden de-crease in the number of one-storey buildings was not a result of their demolition, but addi-

47 Today Klaićeva Street

tional construction of extra stories. Already in 1887 the town-planning regulations prescribed construction in such a way that additional storeys could be added later on. In the end, many buildings of that area subsequently became multiple storey buildings. In 1914 there were 28 building lots.

## CONCLUSION

### ZAKLJUČAK

Thanks to the evaluation of its traffic functions, the Lower Town area of Zagreb (in 1892 still mainly agricultural) became the largest residential zone of the town by 1914. Due to its exceptional traffic position it soon developed important central functions and by 1914 became the central business district of Zagreb. Two town-planning regulations dating from 1865 and 1887 prescribed future development of the town, giving it a morphological structure. The Lower Town subsequently developed a regular orthogonal street pattern characterized by town blocks of two- and three-storey buildings. The location of the railway station and the market place influenced the direction of urban development. In the period between 1862 and 1914 they were one of the strongest pull-factors of development, showing the most dynamic construction in the town area between the railway station and the market place. After the relocation of the market place and the construction of the new railway station, construction works changed their gravity centre from western to southern and eastern parts of town. The location of certain central functions, such as

shops, was considerably determined by the traffic importance of certain streets as well as the location of the market place and the railway station. The location of other public institutions was determined primarily by the representative zone of parks (the so-called „green horseshoe”). In the observed period between 1862-1914 the process of functional differentiation of the Lower Town area was still not completed, resulting in typical mixed-purpose functions (especially residential and trade functions).

The industry in Zagreb started to develop in 1862 along the railway tracks and adjacent to railway stations. Construction works were begun on former agricultural properties, which were small and fragmented in their structure due to many previous land divisions. The early production structure of the Zagreb industry shows the prevailing branches traditionally present in manufacture and handicraft: food industry and timber processing industry. Although by 1914 industry had definitely become the key factor of town development, industrial areas in the functional sense were still not homogenous regarding their spatial arrangement and production organization. Smaller residential and agricultural areas are still present within the industrial ones and therefore we can still not define them as typical industrial zones. They grew into real industrial zones in the period between the World wars when a continued zone of industrial production was shaped, transforming Zagreb into the most significant industrial town in Croatia as well as one of the major metropolises of south-eastern Europe.

[Translated by: Author

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ILLUSTRATION SOURCE

IZVOR ILUSTRACIJA

FIG. 1 \*\*\* 1994: 88-89

FIG. 2-10 Drawn by M. Slukan Altić

TABLE 1 HDA – *Parzellen-Protocoll der Gemeinde Zagreb dolnji* 1862, 1893 and 1914

## SUMMARY

## SAŽETAK

PROMJENE MORFOLOŠKE I FUNKCIONALNE STRUKTURE  
DONJEGA GRADA ZAGREBA 1862.-1914. NA TEMELJU KATASTARSKIH IZVORA

U kartografskom smislu katastar predstavlja najdetaljniji uvid u prostor. Katastarski planovi pružaju uvid u funkcionalnu strukturu prostora, prostorni raspored izgrađenih i neizgrađenih površina, odnosno način korištenja svake pojedine čestice. Pomoću katastarskog plana možemo proučavati i elemente morfološke strukture grada – građevni materijal objekata, raspored i plan ulica, te dominantne pravce širenja naselja. Istodobno, katastarski upisnik čestica daje nam vrlo precizne kvantitativne osobine svih kartiranih pojava u prostoru. Obradom podataka što nam ih pruža upisnik čestica možemo statistički vrlo precizno izraziti funkcionalnu i morfološku strukturu nekoga prostora, odnosno egzaktne iskazati sve promjene koje se u njemu događaju. Ovdje iznosimo iskustva temeljena na proučavanju katastarskih izvora Donjega grada Zagreba nastalih u razdoblju 1862.-1914.

Iz provedene analize vidljivo je da sve do početka izgradnje željeznice 1862. godine Zagreb se svojom veličinom i gospodarskim značenjem nije osobito izdvajao od ostalih hrvatskih gradova. Njegovo posebno značenje ovisilo je o njegovoj političkoj ulozi kao glavnoga grada Hrvatske. U predindustrijskoj fazi, gospodarska osnova koju je Zagreb tada imao nije mogla pokrenuti značajniji prostorni rast grada. Sve do izgradnje željezničke mreže, u Zagrebu su osnovne gospodarske aktivnosti – trgovina i obrt. Željeznica, koja je omogućila razvoj industrije i snažan priljev stanovništva iz agrarne okolice grada, potaknula je transformaciju površine Donjega grada, karakteriziranu urbanizacijom i deagrarizacijom njegove površine te prerastanjem Donjega grada iz podgrada povijesnih jezgri u novo poslovno i trgovačko središte srednjoeuropskoga industrijskog gra-

da. Od 1862. godine Zagreb počinje poprimati obilježja industrijskoga grada u smislu formiranja nove unutrašnje prostorne strukture, kao i veza sa širom okolicom. Taj je rast grada popraćen snažnom funkcionalnom i morfološkom transformacijom njegove površine, izraženom u promjeni udjela izgrađenih i neizgrađenih površina, udjela pojedinih kultura (oranica, livada, pašnjaka, voćnjaka i vrtova), kao i promjenom fizionomije naselja, posebno njegovih rubnih dijelova.

Godine 1862. procesi urbanizacije Donjega grada još su u inicijalnoj fazi. Te je godine bilo urbanizirano tek oko 40% površine Donjeg grada, dok se gotovo 60% površina koristilo za poljoprivrednu proizvodnju. Postojeca izgradnja odnosila se gotovo isključivo na stambene objekte. Plan ulica bio je nepravilan, a u trodimenzionalnoj slici prevladavale su prizemnice i jednokatnice. S obzirom na prikazanu strukturu Donjega grada Zagreba, možemo zaključiti da se utjecaj željeznice još nije odrazio na funkcionalnu i morfološku strukturu, pa grad još uvijek ima odlike predindustrijskoga grada, koji će tek ući u željezničku fazu razvoja. Grad se razvijao spontano, bez urbanističkih osnova, a dominantni je smjer izgradnje grada određen prometnim pravcem kolnoga prometa (Ilica, Vlaška) u smjeru istok-zapad. U novoizgrađenim dijelovima Donjega grada nema izrazitog zonin- ga, već je izražena celularna struktura karakteristična za predindustrijski grad.

Od dolaska željeznice 1862. do 1893. godine, pod utjecajem rane faze industrijalizacije, Donji grad počinje doživljavati značajnije funkcionalne i morfološke transformacije. Udio urbaniziranih površina sada iznosi više od 60%. U ovom je razdoblju formiran i novi plan ulica, utemeljen prvom (1865.) i

drugom (1887.) regulacijskom osnovom, čime je stvorena današnja morfološka struktura Donjega grada koju karakterizira ortogonalna shema ulica i blokovska izgradnja. Nakon dolaska željeznice, kada industrija postaje temeljem razvoja grada, željeznička pruga i njezini ključni objekti – kolodvori – počinju bitno utjecati na dominantne smjerove izgradnje grada. U razdoblju 1862.-1893. glavne silnice razvoja postaju ulice koje vode prema kolodvoru, osobito one koje su povezivale kolodvor i sajmište. Druga zona intenzivne gradnje bio je prostor duž istočnoga kraka Zelene potkove, kojega je uređenje u ovom razdoblju potaknulo intenzivniju gradnju nekih od najreprezentativnijih palača državnih institucija, koje su i danas simboli Donjega grada. Trendovi funkcionalne i morfološke transformacije Donjega grada nastavljeni su i u razdoblju 1893.-1914. U tom je razdoblju udio izgrađene površine porastao na 77%. Istodobno, u udjelu neizgrađenih površina od 22% čak 12,9% čine hortikulture površine, čime je poljoprivredna proizvodnja gotovo potpuno istisnuta (preostali udjeli poljoprivrednih površina odnose se na voćnjake i vrtove unutar blokova zgrada). Do 1914. godine u potpunosti je dovršeno formiranje ortogonalnoga plana ulica, a u trodimenzionalnoj slici Donjega grada sada dominiraju dvokatnice i trokatnice. Kao pokazatelj transformacije Donjega grada u razdoblju od 1862. do 1914. godine javlja se i izrazit porast broja centralnih funkcija. Nakon 1862. Donji grad postaje najreprezentativniji prostor izgradnje, osobito njegova Zelena potkova, duž koje se gradi najveći broj javnih institucija. Tako je do 1914. godine Donji grad definitivno preuzeo funkciju poslovno-trgovačkog, obrazovnog i kulturnog središta grada.

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## BIOGRAPHY

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